CLAIMS

What is claimed is:

1. An RNA comprising a nucleotide sequence as shown in SEQ ID NO: 1 or a nucleotide sequence complementary to said nucleotide sequence.

2. A DNA comprising a nucleotide sequence as shown in SEQ ID NO: 1 in which uracil is replaced by thymine, or a nucleotide sequence complementary to said nucleotide sequence.

3. A method for diagnosing infection with papaya leaf-distortion mosaic virus in a plant, comprising determing whether the plant is infected with the virus by detecting an RNA fragment specific in the virus from the plant, wherein the RNA fragment corresponds to a part of a nucleotide sequence as shown in SEQ ID NO: 1.

4. The method of claim 5, wherein an RNA fragment corresponds to a part of the sequence of the nucleotides 136 - 1575 as shown in SEQ ID NO: 1.

5. A method for producing a papaya leaf-distortion mosaic virus-resistant plant, comprising integrating a DNA fragment having a function to impart resistance against papaya leaf-distortion mosaic virus into a plant, wherein the DNA fragment corresponds to a part of a nucleotide sequence as shown in SEQ ID NO: 1.

6. A method for producing a foreign protein in a plant comprising the steps of:

1) synthesizing cDNA from genomic RNA of papaya leaf-distortion mosaic virus;

2) adding a nucleotide sequence encoding an amino acid sequence, which can be cleaved with a protease derived from papaya leaf-distortion mosaic virus, to the 5' terminus and the 3' terminus of a gene encoding said foreign protein to obtain a DNA fragment having the nucleotide sequence and a nucleotide sequence of the gene;

3) inserting the DNA fragment of 2) into the cDNA of 1);

4) preparing an RNA by allowing an RNA polymerase to act on the cDNA of 3); and

5) infecting a plant with the RNA of 4).

7. A protein selected from the group consisting of the following (a) to (c):

(a) a protein comprising an amino acid sequence as shown in SEQ ID NO: 4;

(b) a protein comprising an amino acid sequence as shown in SEQ ID NO: 4 having deletion, substitution, or addition of one or more amino acids and having a protease activity to cleave peptide bonds between Gln-Ala, Gln-Ser, and Glu-Gly; and

(c) a protein derived from papaya leaf-distortion mosaic virus encoded by a DNA which hybridizes to a DNA comprising a nucleotide sequence as shown in SEQ ID NO: 3 or a DNA complementary to said nucleotide sequence under stringent conditions, and having a protease activity to cleave peptide bonds between Gln-Ala, Gln-Ser, and Glu-Gly.

8. A DNA encoding the protein of claim 7.